A NEW AND IMPORTANT INVENTION,

BY

DOUGLAS BLY, M. D.

CONTENTS.

A NEW AND IMPORTANT INVENTION,

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DOUGLAS BLY, M. D.

BY FREQUENT DISSECTIONS,

DR. BLY HAS SUCCEEDED IN EMBODYING

THE PRINCIPLES OF THE NATURAL LEG

IN AN ARTIFICIAL ONE,

AND IN GIVING IT

LATERAL, OR SIDE MOTION AT THE ANKLE,

THE SAME AS THE NATURAL ONE.

BY SO DOING, HE HAS PRODUCED

THE MOST COMPLETE AND SUCCESSFUL INVENTION

EVER ATTAINED IN ARTIFICIAL LEGS.

ROCHESTER:
PRESS OF CURTIS, BUTTS & CO., UNION AND ADVERTISER OFFICE.
1862.

Fig. 4

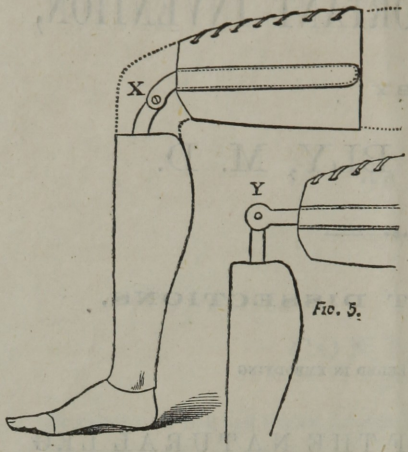


Fig. 5.

Fig. 1

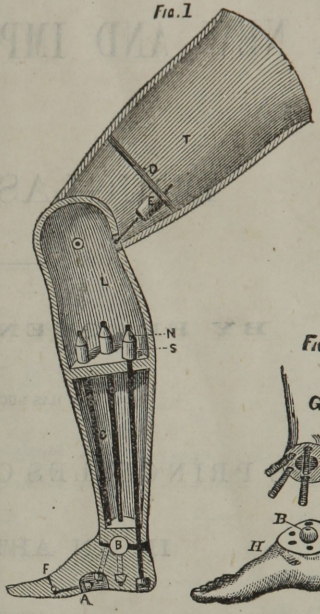


Fig. 3.

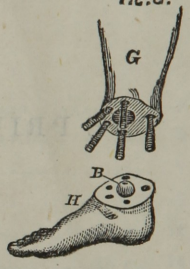


Fig. 6

Fig. 2

Fig. 8

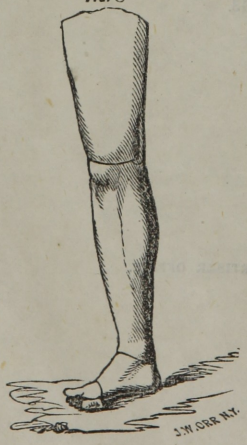
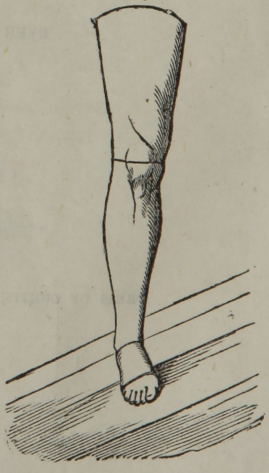


FIG 9



DESCRIPTION.

Fig. 1 is a section of Dr. Bly's Ball and Socket Jointed Artificial Leg.

The ankle joint is formed by a BALL (*B*) OF POLISHED IVORY, which is a joint that *admits of every motion that the natural ankle does*, WITHOUT AN EXCEPTION.

The cords (*C*) assume the position and functions of the natural tendons. Only three are shown in full, but the ends of all are seen in Fig. 3.

S is three of the five rubber springs, which take the place of the muscles of the natural leg. (See description, pp. 3 and 4.)

N is the nuts, by which the tension of the cords and springs are regulated to suit the wearer.

E is the spring which operates the knee joint.

Fig. 2 is a posterior view of the leg and thigh ; the thigh in section—showing the knee cords (*K*) which take the place of the crucial ligaments of the natural knee. (See p. 5.)

Fig. 4 shows the curved joints (*X*) on either side of the knee, as constructed by *Dr. Bly*, for amputations *below* the knee. The curve corresponds with the natural knee, and allows the pants to set smoothly.

And, Fig 5 shows the joints (*Y*) for the same purpose, as constructed by ALL OTHER makers. (See description, p. 5.)

Dr. Bly, being the INVENTOR *and* PATENTEE, *has the* EXCLUSIVE *right to manufacture each and all the within described improvements.*

Fig. 6. The right leg of this figure shows one of Dr. Bly's Artificial Legs, worn by a mechanic, and flexed laterally at the ankle joint, the same as a natural leg. It assumes every other position of the natural leg with equal facility. (See p. 4.)

Fig. 8, represents the ankle joint flexed diagonally, as is often the case when one side of the foot happened to be placed on a small stone, or other obstacle.

Fig. 9, shows the action of the ankle joint when walking on the side of a hill, or on an inclined plain, the foot accommodating itself to the surface, like the natural foot.

The joints in this leg are made *without* iron or any kind of metal, therefore the leg is EXTREMELY LIGHT ; MUCH LIGHTER THAN ANY OTHER. The liability of metallic joints to rattle and make a noise, after the leg has been worn a short time, is well known, and the annoyance which it causes the wearer at every step is also well known. Now, as there is no metal about the joints in this leg, there is *no noise*. The ankle joint is formed by a BALL OF POLISHED IVORY, *plying in a socket of vulcanized india rubber*. (See Fig. 3.)

This joint accomplishes the great object which the Artificial Leg makers have hitherto sought for in vain, viz. : IT ADMITS OF MOTION IN ALL DIRECTIONS LIKE THE NATURAL ANKLE JOINT, and thereby allows the ARTIFICIAL FOOT to accommodate itself to the varied inequalities of the surface, THE SAME AS THE NATURAL FOOT. (See Figs. 8 and 9.) This enables those who wear it to walk so well, that it is not even suspected, much less detected.

Furthermore, this is a joint that requires NO OIL, a fact of no little importance, as those will testify who have worn legs with metallic joints, and been obliged to carry pocket oil cans.

In the places corresponding to those occupied by the muscles of the natural leg are placed rubber springs, (see Fig. 1,) with catgut cords (see Figs. 1 and 3,) of sufficient strength, extending downward in place of the natural

tendons ; and it is really interesting to see how well the action of the rubber springs imitate those of the natural muscles. These rubber springs or artificial muscles, together with the ball and socket joint, produce EVERY MOTION *of the* NATURAL LEG, WITHOUT *an exception.*

The springs are made of rail-road car spring rubber, and *used by* COMPRESSION, therefore it is *not* possible to overtax or break them ; I repeat, *it is* NOT *possible to break them.* This will be appreciated by those who have worn legs with metallic springs ; especially by those who have worn the Palmer leg.

The power, and action, of all the springs in this leg, are regulated simply by turning a nut, so that the WEARER MAY ADJUST THEM TO SUIT HIS OWN PECULIAR GAIT, with the greatest facility.

Then, instead of the mechanical motions given a limb by metallic springs, *the rubber springs impart easy, uniform motions* to the limb, *like those of the natural muscles,* which give it, when in use, a REMARKABLE LIFE-LIKE APPEARANCE.

In walking, when the weight of the body rests upon the ball of the foot, the spring representing the gastroenemius and soleus muscles is firmly compressed, and when the weight of the body is thrown forward on to the other foot, the spring rises and carries the foot forward to its place, with very little effort of the wearer.

In ordinary walking, with the toes turned outward, the foot, *like the natural one,* is flexed diagonally, or in the line of motion, *which makes a graceful step.* Artificial legs made heretofore, roll the foot to compensate for this diagonal flexion,—hence the uneven gait so often seen.

If the foot is turned out sidewise to brace the body, or to work at a bench, as in many kinds of mechanical labor, the ankle joint flexes *laterally* and the foot remains flat on the ground, and gives a *firm base of support,* which is of *great importance* in all kinds of labor. (See Fig. 6.)

Furthermore, when walking, if one side of the foot happens to be placed on a stone or elevation, or into a hole, the *mobility of the ankle joint allows the foot to yield just* ENOUGH *to accommodate itself to the inequality, and thereby* PREVENT *stumbling or falling,* which necessarily takes place more or less with all legs which do not admit of lateral and diagonal motion at the ankle joint. (See Figs. 8 and 9.)

The knee-joint, for amputations above the knee, has no side or lateral motion, because there is none in the natural knee. The joint is constructed in such a manner that no bushing is ever required—consequently, the annoyance and expense of sending the leg to the maker to have the joints bushed every now and then to keep them tight, is entirely avoided. The joint is so arranged that the wearer may tighten it in a moment, whenever he chooses.

The knee-joint is operated by a spring, similar to those already described. Its motions are limited and controlled by two cords which take the place of the crucial ligaments of the natural knee-joint ; consequently, there is no unpleasant jar caused by any solid parts coming in contact.

For amputations below the knee, no artificial knee is required, but there is a jointed steel strap on each side of the knee, which supports the leather lacer. In the construction of these straps, there is another nice little invention, *which, like the rest, takes* NATURE *for its guide.*

By laying a femur (thigh bone) on paper and drawing a line on each side, I obtained the exact curve of the lower end of the bone. Then I gave the jointed extremities of the straps (*X*) the *same curve*, consequently they work in harmony with the natural joint, and conform to the contour of the knee, which allows the pants to remain smooth and handsome when sitting with the knee flexed. (See Fig. 4.)

The square or angular straps (*Y*) used by all other makers, (represented in Fig. 5,) make a very bad appearance when the wearer is sitting, and are ugly, uncouth things, to say the least. They demonstrate what I have already stated, namely, *the necessity of taking* NATURE for a *guide* in *all* things pertaining to *Artificial Legs*.

Formerly the manufacture of artificial legs has been left entirely to common mechanics, and THOSE WHO HAVE UNDERGONE AMPUTATION, but who have little or NO knowledge of anatomy ; consequently, the CONSTRUCTION of artificial legs HAS BEEN MERELY MECHANICAL, AND NOT ANATOMICAL.

They have imitated *some* of the motions of the natural leg quite well, *but others not at all.* Indeed it could hardly be expected that any one but an anatomist should be able to model a leg so close to nature, as to imitate all the varied motions of the natural leg.

To obtain an Artificial Leg, with ALL *the varied motions of the* NATURAL ONE, I have devoted much time, and by *frequent dissections, have accomplished the object.* I saw that nature used no bolts or pins to bolt or fasten the foot to the leg, but that she nicely rounded the bones at the joint, and held them in place by means of ligaments, tendons and muscles. Then, taking nature for my guide, I dispensed with all the hinges, pins, bolts, and cumbrous metallic joints generally used in artificial legs, and simply rounded and shaped the joint like the bones of the natural leg, and supplied the place of the natural muscles by means of india rubber springs, and the tendons by catgut cords of sufficient strength, and the LEG WAS A COMPLETE COPY OF NATURE. Like every thing which takes nature for its guide, it is very simple, and not liable to get out of order.

In form the limb is always made to correspond exactly with the natural one, then it is covered with a delicate skin, which is enameled with the most delicate tinted flesh-colored enamel, shaded to suit each particular case ; and the whole is so natural in appearance, and so life-like in all its motions, that it is often mistaken for a natural limb.

It is adapted to all amputations, either above or below the knee.

Since it is found that this leg meets with such success, some of the makers of other legs advertise that their patents do not prevent them from using any kind of spring or material they choose. They would like to have people think that they could make a leg like mine. But do not be hoodwinked: *their* patents do not prevent them, but *mine does.* So let it be remembered that each and every device herein described, is patented to me in the United States, England and France; and that whoever manufactures one of them within these countries, does it at his peril; also, that whoever uses one, incurs the same risk, unless he purchases it of me.

DOUGLAS BLY, M. D.,
ANATOMIST AND SURGEON.

PREMIUM.

New inventions continue to mark the progress of American improvement. In 1851, the Palmer Leg took the premium at the World's Fair in London, and now *this* Leg takes the premium from the Palmer Leg, and stands unrivalled. See the following report of the New York State Fair, October, 1858:

"DR. D. BLY, ROCHESTER.

"Artificial Leg. ☞ Award, DIPLOMA and LARGE MEDAL.

"This 'Artificial Leg,' presented to your Committee for inspection, was brought in direct competition with 'Palmer's Artificial Leg,' before noticed in this Report; we were, therefore, necessarily required to decide relative to their *comparative* merits—and, after a full investigation of their mechanical construction, materials used, and the adaptation to the accomplishment of the object of their creation, found no difficulty in arriving at a conclusion satisfactory to ourselves; and which, we are confident, will be adopted or approved by our unfortunate fellow-citizens who are compelled to supply the want of *natural* by *Artificial* Legs. We are *unanimous* in the opinion that the Leg presented by DR. BLY is the *best*, and that it possesses advantages over the 'Palmer Leg' very desirable to the user, and creditable to its maker. These are:—1st. Its *weight* is less. 2d. No *metallic springs* are used in its construction, demanding frequent repairs. 3d. But *one* metallic bolt (that at the knee joint) is used. 4th. The ankle joint is so constructed as to admit of a lateral, rotary, or side motion of the foot (in exact imitation of that in the natural ankle), thereby enabling the wearer to walk upon uneven surfaces, or step upon small stones, or other light obstructions, with less liability to stumble or fall—lighten the tax upon his *caution* as to *where* and *how* he steps to secure safety, and, in an equal ratio, diminish the physical effort necessary to its use.

"This Leg combines the desirable qualities found in Palmer's, with the *improvements* above enumerated, and is a nearer approach, in its anatomical structure and motions, when in use, to its 'model,' the natural Leg.

"We award the First Prize to Dr. Bly, for his *improvements*, and the evidence of *progress* in the mechanic arts, found in the construction of his 'Artificial Leg.'"

I certify that the foregoing is a true abstract from the original Report made by Department No. 72, of the New York State Fair, held at Syracuse, October, 1858.

A. P. SIGOURNEY,

Chairman of Commitee.

The first prize was also awarded this Leg at the Ohio State Fair at Dayton, Indiana State Fair at Indianapolis, Missouri State Fair at St. Louis, the United States Fair at Cincinnati, and many other Fairs and Institutes. It has been awarded the first prize every time it has been exhibited. The prizes taken by the Palmer Leg were most all taken before this Leg was invented; the remainder in places where this Leg was not exhibited.

TAKE NOTICE.

Many surgeons who now recommend this Leg, formerly recommended the Palmer Leg or others, which are out of date since this invention, but the makers still publish the old certificates, renewing the dates of some, and leaving them off from others altogether. No comment is necessary.

TESTIMONIALS OF SURGEONS.

We, the undersigned, Physicians and Surgeons, residents of the city of Rochester, take pleasure in stating that we are well acquainted with Dr. Douglas Bly, of said city, and are familiar with his improvements of the Artificial Leg. That, in our opinion, the Leg, as improved and manufactured by him, has a marked superiority and many advantages over all others heretofore offered to the public.

The ball and socket joint of the ankle is the great characteristic of his improved Artificial Leg, which not only gives the foot an easy, graceful motion, quite natural in appearance, but renders it flexible and adjustable to uneven surfaces, desiderata not heretofore attained. It is constructed without metallic springs, bolts or joints, requires no oil, makes no noise, and is not liable to get out of repair. It is very strong and durable, and is moreover, finished with great neatness and beauty. The structure and motions of it, so admirably supply those of the natural leg, that we have no hesitation in recommending it to the notice of those who have been so unfortunate as to lose a limb and require an artificial one.

Rochester, May 14th, 1860.

W. W. REID, M. D.,
E. M. MOORE, M. D.,
T. F. HALL, M. D.,
P. G. TOBEY, M. D.,
E. W. ARMSTRONG, M. D.,
H. W. DEAN, M. D.,
W. W. ELY, M. D.,
WM. H. BRIGGS, M. D.

VALENTINE MOTT, M. D.

New York, Feb. 10, 1860.

When the Palmer leg was invented, I recommended it to all who needed anything of the kind, because it was an improvement on the old Anglesea Leg. And now I have the pleasure of informing them that Dr. Bly has invented a leg which is a great improvement on the Palmer leg. The advantages it possesses over the Palmer leg are:

First. The ankle joint admits of motion not only antero-posteriorly, but laterally, which allows the wearer to walk on any grade, or on rough and uneven surfaces, without inconvenience.

Second. The ankle joint is constructed without iron, steel, or metal of any kind; in fact, little or no metal is used in the limb, which renders it very light.

Third. The joints, instead of being bushed with buckskin, which requires a renewal at the hands of the maker, when worn, are adjustable, and under the control of the wearer.

Fourth. The springs are made of India rubber, and imitate more closely th action of the muscles.

Fifth. The action of the springs can be increased or diminished at the option of the wearer, whereby each can adjust the motions of the leg to suit his own peculiar gait.

VALENTINE MOTT, M. D.,
Emeritus Prof. of Surgery and Surgical Anatomy in the University of N. Y.

ALFRED C. POST, M. D.

New York, Feb. 10, 1860.

I concur in the above recommendation.

ALFRED C. POST, M. D.,
Prof. of the Principles and Operations of Surgery in the University of N. Y.

JAMES R. WOOD, M. D.

New York, 2d mo., 15th, 1860.

I have examined with care the ball and socket jointed leg, invented by Dr. Bly, and am satisfied that the mobility of the ankle joint, whereby the foot can accommodate itself to grades and inequalities of the ground, is a great improvement upon all artificial legs made heretofore.

JAMES R. WOOD, M. D., No. 2 Irving Place,

Surgeon to Bellevue Hospital, New York.

A. B. SHIPMAN, M. D.

Syracuse, N. Y., April 25th, 1860.

I am familiar with Dr. Bly's Ball and Socket Jointed Artificial Leg, and must say that it meets the wants of patients the best of any artificial leg ever brought before the public. A flexible ankle joint that is susceptible of every motion of the natural one, is what has long been wanted. This Dr. Bly's leg has, and it is this that marks its superiority over all others.

A number of my patients are wearing the Palmer Leg, and their motions are stiff and cramped or confined. They seem to want a freedom of motion, especially if on uneven ground. There are also a number of my patients who are wearing Dr. Bly's Leg, and *their* motions are natural, free and easy, so much so, that one of them came into my office, and his gait was so natural that I did not mistrust that he was my patient, or that he was wearing an artificial leg, until he showed it to me.

With utility Dr. Bly's Leg combines durability. One of my patients, a large, powerful man, who works in a saw-mill, where he rolls logs and carries lumber over all sorts of rough places, has worn one of Dr. Bly's Legs for a year without its giving out or getting out of order in the least.

A. B. SHIPMAN, M. D.,

Late Prof. of Surgery in the Indiana Med. College.

WILLARD PARKER, M. D.

I have examined the Artificial Leg of D. Bly, M. D., of Rochester, and have formed a very favorable opinion of its character.

WILLARD PARKER, M. D., 37 East 12th street,

Prof. of the Principles and Practice of Surgery in the College of Physicians and Surgeons, New York.

ALDEN MARCH, M. D.

Albany, N. Y., Feb. 22, 1860.

I concur in the above.

ALDEN MARCH, M. D.,

Prof. of Surgery in the Albany Medical College.

CHARLES A. POPE, M. D.

St. Louis, Aug. 17th, 1860.

Dr. D. Bly:

Dear Sir:—Your artificial leg seems to me to possess evident advantages over all others hitherto invented. I doubt not that it will speedily become the favorite substitute. So far as I know, those who have worn it are abundantly pleased.

Yours, &c., CHAS. A. POPE, M. D.,

Prof. of the Principles and Practice of Surgery, in the St. Louis Medical College.

TESTIMONY OF THOSE WEARING THE LEG.

MICHEAL RYAN.

NASHVILLE, TENN., Sept. 10, 1859.

DR. BLY:

Dear Sir—I send you a few lines for the benefit of those who are situated as I was before I used your newly-invented Artificial Leg. I had heard that you had invented a leg by dissecting; and, that by taking Nature for your guide, you had made a leg which has all the flexibility and motions of the natural leg, which makes it remarkably useful and life-like; still I was afraid to write to you to make me one, because I thought the story too good to be true. And I should not have got one had it not been for Dr. Carow, of Nashville. He told me that he had seen it, and that it was really modelled after the natural leg, and that it is one of the finest things ever invented, and I had better get one. I took his advice, and I am a thousand times obliged to him for his kindness. Notwithstanding all that I have heard and read, my highest expectations are more than realized. And to all who have any doubt after reading this, I say come and see my leg, or go to Dr. Bly's establishment, and see for yourselves, for in this case seeing is believing.

Respectfully yours, MICHAEL RYAN.

LAWRENCEBURGH INDIANA, Aug. 29, 1859.

DR. BLY:

Dear Sir—My leg operates very satisfactorily. My friends are all pleased with its natural motion; in fact some have told me they could see no difference in the motion of my feet when walking.

I can walk on boulder pavements with ease—your Ball and Socket Ankle-Joint allowing the foot to adjust itself to the unevenness of surface very much like the natural one.

The whole appearance is so good that but few notice that I have an artificial leg. In three weeks after leaving your establishment, I traveled about twelve hundred miles, and have been in company with people for half a day, in hotels, cars and stages, who did not suspect but I had both my natural legs.

Resp'y yours, etc. WILLIAM LEAL.

ADDITIONAL TESTIMONY FROM WILLIAM LEAL.

AURORA, Ind., May 13th, 1860.

DR. BLY:—DEAR SIR:—In answer to your inquiries about the leg you made me, I would say that it still remains in as good order as when I wrote you last summer. It has needed no repairs whatever, and has no appearance of needing any yet. The ankle joint is superior to any other in use, it gives an easy motion, no jerking against the stump, on the roughest ground; it is always tight, and mine shows no wear yet.

A stranger came to work in the establishment where I am employed, and he had been there a month, when I made a remark about my leg; he looked surprised and said, "what do you mean?" I said, "do you not know that I wear an artificial leg?" He said he "had not thought of such a thing."

My P. O. is now at Aurora.

Respectfully yours,

WILLIAM LEAL.

STILL LATER TESTIMONY FROM WILLIAM LEAL.

AURORA, IND., May 13, 1862.

DR. BLY:

Dear Sir—Two years ago to-day I wrote to you that my leg was in as good order as when I wrote you the season before that, and I now repeat the same thing. I have now worn it between three and four years without spending a cent on it, and it is all right yet.

Respectfully yours,

WILLIAM LEAL.

FIG. 12.

LORENZO TAYLOR.

ELBRIDGE, ONONDAGA CO., N. Y., Sept. 1, 1859.

Dear Sir—I have worn the leg you made me last May every day since; and in justice to you, *and those who are suffering as I was*, that they may not be imposed upon, I feel it my duty to let it be known how useful and important your invention is. I feel it more on account of a letter I received from Palmer & Co. before I got my leg.

I would not like to repeat what they say about your leg, therefore I send you their letter—you can read for yourself. If I had not been near by, so I could go and see your leg for myself, I should not have bought one, after reading their letter, but should have got one of theirs, which has only a single up and down motion at the ankle-joint, instead of the ONE I NOW HAVE, WHICH ADMITS OF EVERY MOTION OF THE NATURAL ANKLE.

If I happen to step on a sidling place, or on a stick or stone, the ankle-joint yields just enough to let the foot accommodate itself to the inequality, and thereby prevents all stumbling or inconvenience.

I work in a saw-mill, where I roll logs (see fig. 12), carry lumber, tend the saw, and do all kinds of work. When lifting, I sometimes put a strain on the leg, equal to the weight of two or three men, but I find that the leg can stand all I can lift.

The first week that I wore the leg, I walked with one crutch; the next week I used one cane, and the next week I lost my cane so often that I concluded to throw it away altogether.*

With much gratitude, I subscribe myself,

LORENZO TAYLOR.

* The third week, he "lost his cane so often."—that sentence alone tells the whole story, to a thinking man

J. H. DAVIS.

LE ROY, N. Y., APRIL 2, 1859.

DR. BLY:

Dear Sir—It gives me pleasure to inform you that the leg I bought of you last September is of the greatest service to me. I am in the grocery business, and on my feet from morning until late at night. I can roll and lift barrels and boxes of goods out and into the wagon and cellar, deliver goods, and do everything pertaining to my business. The leg is all right, and works well, though I have not put a drop of oil into the ball and socket-joint since I got it. I wish I had one of your Improved Knee-Joints, so I would not be obliged to use any oil at all, for it is a great nuisance. You can recommend the Ball and Socket, or Universal Motion, at the ankle-joint, as highly as you like, for it cannot be over rated.

Most truly and thankfully yours, J. H. DAVIS.

ADDITIONAL TESTIMONY FROM J. H. DAVIS.

LEROY, May 10th, 1862.

I have worn one of Dr. BLY's Artificial Legs 3 years and a half, and I hereby state that there has not been a single cord broken, neither has the ball and socket joint got out of order, in any way, shape or manner. And in regard to utility and comfort to the wearer, tho Universal Joint can not be gainsaid. I have been keeping a grocery store, rolling barrels, and carrying boxes up stairs and down cellar, and I would say to all those who are suffering as I was, that Dr. BLY's Artificial Leg will do all he recommends it to do.

Most sincerely and thankfully yours, JONATHAN H. DAVIS.

A. W. GILBERT.

TULLY, ONONDAGA CO., N. Y., March 30, 1859.

DR. D. BLY:

Dear Sir—From a sense of duty to you, and *those who have been unfortunate*, like myself, I send you the following, which you can make any use of you think best, and you may refer to me whenever you choose.

I am now happy and comfortable, and I attribute it all to the Artificial Leg which I purchased of you last December. I have worn the limb every day since, and have experienced no trouble. Some of the cords I unscrewed a little, and others I screwed up a little, as you told me, until I got it to suit my particular step or gait, and it has run like clock-work ever since. I have not put a single drop of oil in either the knee or ankle-joint; yet, if I am not mistaken, it works better than when I got it. The limb sets perfectly easy, and does not hurt the stump, as other limbs do which I have seen in use. The mobility of the ankle-joint prevents the stump from prying against the socket when the foot happens to be placed on any inequality.

The Palmer and Selpho Legs are both in use about here, but it is the prevailing opinion that yours is the best, because I walk the best. They walk quite well on a carpet, except that their step or gait is not quite as even and natural as mine, and I think it is because they lack the diagonal motion at the ankle; this may be a small matter to you, but it is a great one to us. But when we come to walk out of doors, on all sorts of rough and uneven places, then the SUPERIORITY OF THE BALL AND SOCKET-JOINT IS UNMISTAKEABLE—*it is the thing*. It surpasses my expectations, and I would not be without it for any consideration.

Yours truly, A. W. GILBERT.

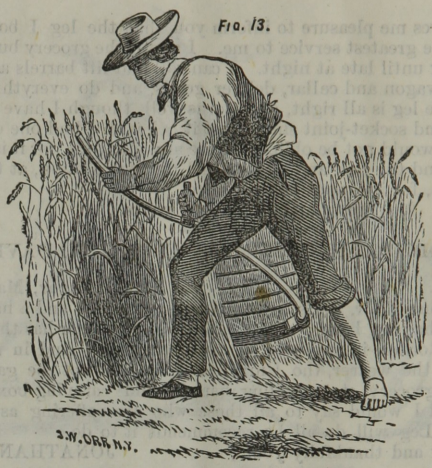
ADDITIONAL TESTIMONY FROM A. W. GILBERT.

TULLY, Onondaga Co., N. Y., May 25th, 1862.

TO WHOM IT MAY CONCERN:—I hereby state that I have worn one of Dr. BLY's Patent Legs three years and a half, and that it is still in the most perfect order. The joints show no perceptible wear yet. They never rattle, creak, or make any noise whatever; and to me, what is very remarkable, is that they never require any oil.

A. W. GILBERT

FIG. 13.



H. J. DRAKE.

CHELSEA, MICH., Aug. 15, 1859.

DR. D. BLY:

Dear Sir—After so long a time, I write to inform you how I am getting on with the Artificial Leg you made me. I have been wanting to give it a fair trial. I cannot find words to express my satisfaction.

I have mowed my grass, and made my hay myself—and that, too, on the marsh, where it was very boggy.

I have cradled my oats myself (see fig. 13), and raked and bound them. In fact I can do most all kinds of work.

I liked to forgot to tell you about threshing. I have been all round the neighbor hood threshing; and by thus changing work, have got help to do my own threshing. Doctor, if I could not get another leg of this kind, I would not take one thousand dollars for this one. Most sincerely and thankfully yours,

H. J. DRAKE.

WINDSOR, CANADA WEST, May 18, 1860.

D. BLY, M. D., Rochester.

DEAR SIR:—In answer to your inquiry as to my opinion of the qualities of the artificial leg which I obtained from you, and am now wearing, I cannot hesitate to state that I have been by no means disappointed in it.

I wore a leg manufactured by Mr. Palmer, of Philadelphia, several years, and felt well satisfied with its usefulness; but I consider that the lateral motion of the ankle joint in your leg IS A DECIDED IMPROVEMENT — the action of it being very useful. The knee joint, and the adaption of the leg to the stump at the hip, are also improvements on the leg which I had from Mr. Palmer.

I am, dear sir, your obedient servant,

JOHN O'CONNER, Jr.,

Warden of the County of Essex.

BONEVENTUE GROSS.

St. Louis, Mo.

Dr. Bly:

Dear Sir—I am not able to express my thanks to you for the Artificial Leg you made for me. I find that it has merits which I did not know of until I began to use it.

The doctors here told me that you had invented a leg, with the ankle-joint patterned right after the natural one, and that it would bend sideways and every way, just as well as the natural ankle—therefore I expected a good deal; still it more than fulfills my expectations.

Besides all this, I find there is no iron or metal of any kind used in the construction of the ankle-joint, which makes the leg *extremely light;* furthermore, the nature of the material is such that no oil is ever required. Then, for amputations like mine—below the knee—the curved joints on either side of the knee are a great improvement on the ordinary square or angular joints, used by other makers.

When I sit down my pants set perfectly smooth over the knee, and I am not obliged to put my other leg across the joints to hide them.

Boneventue Gross.

Saratoga Springs, May 11th, 1860.

Dr. Bly—Dear Sir:—I am still wearing your artificial leg, and feel a satisfaction in saying, that it more than meets my expectation, for its lightness, adaptation and durability. The ankle joint, to nature, is ALL that art can imitate: it is perfect in its action. I can walk with ease, and without a cane, on uneven ground, or elsewhere, and am attending to general business about the store.

As to its durability, it needs but a slight mechanical eye to observe that yours is more durable than any other that has been offered to the public.

Hoping that your success may continue, that your improvement may continue to relieve the unfortunate, as it has me.

I remain, yours, &c.,

CLARK W. SALISBURY.

A PALMER LEG REMODELED AND IMPROVED.

Buffalo, Sept. 17, 1859.

Dr. Bly:

Dear Sir—You ask the privilege of publishing my letters. You can do so, if you like. * * * * *.

Yours, etc., William Bushnell.

Buffalo, March 12, '59.

Dr. Bly:

Dear Sir—I have been wearing the Palmer Leg for about four years, during which time I have had two—both made by B. F. Palmer, of Philadelphia. I have had a great deal of trouble and vexation, caused by breaking the instep springs. The instep spring in my second leg has just broken again, which leaves me entirely destitute—my first leg having been completely worthless for some time. I am satisfied that metallic springs cannot be depended upon in an artificial leg; therefore I would like to have you put your patent rubber spring into my second leg. If you will, please inform me by return mail.

Most respectfully yours, William Bushnell.

Buffalo, Sept. 10, 1859.

Dr. Bly:

Dear Sir—I am still wearing my Palmer Leg with the rubber springs you put in for me. I like them very much. It makes one feel mighty comfortable to know that *he has springs that* CANNOT be broken. Besides, they have improved my walking very much, the action of the rubber being so much more natural.

Most respectfully yours, William Bushnell.

JAMES BOLTON, M. D.

RICHMOND, May 16, 1860.

DEAR DOCTOR. — It gives me sincere pleasure to testify to the satisfaction which has been given by the limb fitted by you upon my ward, Master ————. On his arrival home, all his friends were most agreeably surprised by the improved appearance which it gave him, and by the remarkable easy gait with which he walked, after but a few day's use. He has continued to wear it to the present time, without having been compelled to lay it aside for a single day, and of course he now uses it with increased dexterity. The chief advantages possessed by the limb, appear to me to consist of the beautiful imitation of the natural mechanism of the ankle joint. Instead of the heavy metallic hinge joint with its rivets, requiring frequent oiling; often working loose and clattering, or working too stiffly, and creaking; your limb has a beautiful substitute for the ligaments and tendons of the natural joint. This not only avoids the objections to the metallic joint, but gives a graceful elasticity to the step, by a contrivance far more durable, and more resembling that of nature, than the metallic springs in ordinary use. In addition to this, the ball and socket give a sufficient lateral rotation to the foot, to adapt its sole to the uneven surfaces upon which it may be placed.

Very respectfully yours,
JAMES BOLTON, M. D.

Dr. Douglas Bly, Rochester, N. Y.

MEDINA, Ohio, May 11th, 1860

DR. BLY:

SIR—Since the 1st of January last I have worn an artificial limb, manufactured by you. It far exceeds my expectations and I confidently believe it is only excelled by "Nature's own." In form and finish it is so perfect that it may be dressed the same as the other foot.

I have tested the utility of the ankle joint and find the lateral motion of great assistance in walking on an uneven surface.

Whoever uses it and tests its merits, I am sure will add testimony to its superiority.

I am happy in being able to recommend to any one whose misfortunes render such a substitute necessary, a limb which has thus far served me so well and promises to meet future exigencies.

Yours, gratefully,
MARY S. BECKWITH.

OGDEN, MONROE Co., N. Y., Sept 1, 1859.

I have used Artificial Legs of various constructions for twelve or fifteen years, and latterly, have worn one of Dr. Bly's Ball and Socket-Jointed Legs, which, in principal and operation, is a great and essential improvement on those heretofore used.

The motions of this limb are more natural than any I ever saw before. The universal motion at the ankle-joint is worth everything to a farmer; it enables me to go about my farm, and do my work, no matter how uneven the ground. I can chop, make rail fence, dig ditch, and do most all kinds of work, though my leg is amputated above the knee.

It is now more than a year since I obtained this leg, and it has given me no trouble in breaking or giving out, as all my others have done. EASTMAN COLBY.

ADDITIONAL TESTIMONY FROM EASTMAN COLBY.

OGDEN, Monroe Co., April 27th, 1860.

I hereby certify that I have worn one of Dr. BLY's Ball and Socket Jointed Legs for two years, and that the Ball and Socket Joint and the cords connecting it have not broken, given out, or got out of repair in the least. It is the first and only leg I have ever had which did not require tinkering. I have worn artificial legs of different patents, for fifteen years, but have never worn any with which I could walk with the ease and facility that I can with Dr. BLY's, especially on rough and uneven ground. EASTMAN COLBY.

HENRY EITT, of Rochester, N. Y.

FIG. II

AS HE IS.

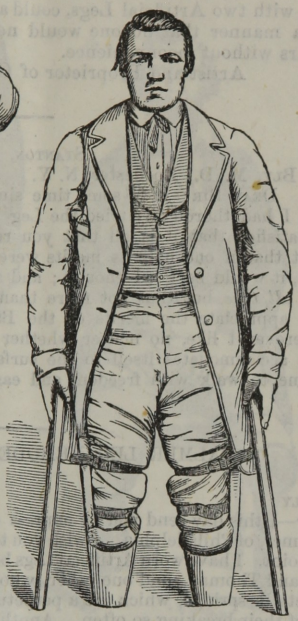


FIG. 10

AS HE WAS.

BOTH LEGS AMPUTATED

ROCHESTER, N. Y.

Dear Sir—I wish to state a few facts, which I hope you will publish for the benefit of those who have had the misfortune to undergo amputation of one or both legs.

For two long years, after I had my legs amputated, I dragged out a miserable existence, walking on my knees, during which time I was shown a great many artificial legs; and, after seeing and learning all that I could, I determined to procure a pair of Dr. Bly's Ball and Socket-Jointed Legs. And now, after using them, I can assure those wanting artificial legs, that their superiority over all others that I have seen, is decided and positive.

The great improvement consists in the mobility of the ankle-joint, which bends sideways and diagonally, and every way the *natural* ankle does. The side motion enables me to keep my balance with the same facility that others do, by allowing the body to sway to one side or the other, as the case requires, particularly when on a steamboat, or on the cars. It takes away the stiffness and uncertainty, or feeling as if on stilts, which there is when on TWO legs, which have NO lateral motion at the ankle. My motions are so free and easy, and I walk so well, that many are not willing to believe that I walk on TWO ARTIFICIAL LIMBS, until I show them. I live a little more than a mile and a half from the post-office, and I am in the habit of walking there, and about town, for an hour or two, and then home again, without a cane; and I ask no one to wait for me, either. If there is any one who does not believe it, let him try me.

I am now learning a trade, and am comfortable and happy.

HENRY EITT.

ROCHESTER, Dec. 27, 1859.

Some time in September last Dr. Bly called at my Picture Gallery and asked me if I could take the likeness of Mr. Eitt, a man who had lost both of his legs, and was wearing two of the Dr 's "Patent Legs." I said I could in half an hour. A little before the time expired, I went down to the foot of the stairs to see if they were coming, and see how the man walked. In a minute or two a man passed me and went up stairs; near him was the Doctor. I asked where the lame man was. "There he is," replied the Doctor. Said I, "he does not go lame." "Well, that is the man," said the Doctor. And I hereby state that Mr. Eitt, with two Artificial Legs, could and did, without the aid of a cane, walk in such a manner that no one would notice any lameness. He went up and down stairs without inconvenience. MATSON OTIS,

Artist and Proprietor of Gallery, No. 14 State St., Rochester.

STANTON, Portage Co., Wis., May 15th, 1860.

DOUGLAS BLY, M. D., Rochester, N. Y.

DEAR SIR: It is some time since my last to you. I have been waiting until I had thoroughly tried the Leg you made me, which I have done, and become satisfied that it is all that you represented it to be. Before I got it, I thought that if one half its merits were true, which I found set forth in your pamphlet, it would be good enough; and now by using it I find that they were not only *all true*, but that not more than half were told. The fact is, no one can fully appreciate the merits of the Ball and Socket Joint, until he uses it. I go wherever I like, no matter whether it is level or hilly, rough or smooth. The foot accommodates itself to the surface, the same as the natural one, and enables me to walk with freedom and ease. Respectfully yours,

W. H. PACKARD.

A PALMER LEG REMODELED AND IMPROVED.

DETROIT, MICH., Aug. 3, '59.

DR. D. BLY:

Dear Sir—I this day send you by express one of my Artificial Legs, manufactured by Mr. Palmer, of Philadelphia. I wish you to insert your patent India-rubber springs and knee-joint. I have worn Artificial Legs between thirty and forty years—Bartlett's, Palmer's, and Thomas', and one other, whose name I cannot recollect—all of them having metallic springs, which are a perpetual source of trouble and expense, in consequence of their breaking so often. Another great source of annoyance with all the Artificial Legs I have seen or worn, is the wearing of the bolts and boxes, producing a clanking or rattling noise; the only remedy being to send the limb to the manufacturer, or some other mechanic, to have the boxes bushed. I saw a specimen of your Artificial Legs last Spring; gave it a thorough examination, and it seems to me you have found a remedy for both of the difficulties alluded to.

Please make the necessary alteration as soon as convenient, as I am in continual fear, when one of my legs is gone for repair, that the springs in the other may break at any time, and compel me to take to my crutches.

Yours truly, E. ROOD.

DETROIT, MICH., Sept. 19, 1859.

DR. D. BLY:

Dear Sir—My Palmer Leg, into which you put your patent springs and knee-joint, came in due season. I am extremely well pleased with the improvement. The action of your springs is remarkably pleasant. There is a LIFE-LIKE ELASTICITY IN THEM, which gives a very fine motion to the leg, far superior to the metallic springs.

Your method of tightening the knee-joint is admirable. It is as much better than bushing with buckskin, as the rubber springs are better than the metallic.

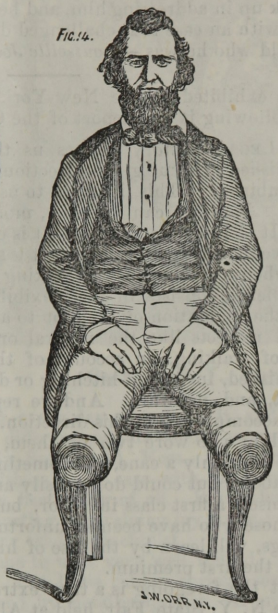
I am so well pleased that I shall send you my other Artificial Leg, to have your springs and knee-joint inserted, as soon as its instep spring breaks again.

Yours respectfully, EZRA ROOD.

All other legs of similar construction improved in the same manner, on reasonable terms.

DR. J. F. MILLER, of Louisville, Ky.

AS HE IS.



AS HE WAS.

LOUISVILLE, KY., Dec. 10th, 1859.

DEAR DOCTOR:—Again I send you my warmest thanks, for setting me on my feet again. I also feel very thankful to the doctors here for sending me to you. They told me you had constructed a leg on anatomical principles, which I hardly thought possible, but now I am convinced. The Ball and Socket joint at the ankle, allows my feet to accommodate themselves to the varying inequalities of the ground, so well, that not one in a hundred can tell, by seeing me walk, that I walk on anytning but my natural legs. This has been tried over over again. It is a great triumph. I can walk on rough ground, side hills, slanting sidewalks, cobblestone pavements, and up and down stairs without difficulty, not even requiring a cane. In going up and down stairs I use my feet alternately, the same as other people. When I had had my legs only three weeks, I walked a mile and a quarter in 22 minutes, and went up one flight of stairs in the time. A few days ago I walked over the Oakland Race Course—one mile—in fourteen minutes. Dr. Knight, D. S. Benedict, Thomas Brown, Capt. McPherson, and others, saw me do it. I do not know whether you call that good walking or not, but it suits me pretty well.

I, and my friends, will wager $5,000, that I can walk a greater distance in a given time, than any man living who walks on two artificial legs of any other patent or coustruction.

If there is any one in this region who wants an artificial leg, send him to me, for I am a better certificate than can be published.

Most sincerely yours, DR. J F. MILLER.

☞ Mr. J. F. Miller had the misfortune in California some years ago to have both legs cut off by a threshing machine, and subsequently resided in this city, but was nevertheless able to move about on the remaining joints. During the past year Mr. Miller has procured a pair of artificial legs made by Dr. Bly, of Rochester. We knew Mr. Miller well when he resided here before, and yesterday a friend took us to his office. We found him sitting in a chair on entering, and he immediately arose and coming up to us received us very cordailly. Our friend had not informed us who he was, and we did not recognize him.—We knew the face, but having been accustomed to look down upon him, we now had to look up in addressing him, and he moved about on his artificial "understandings" with an ease that challenged detection. The change was so great we had to be told who he was.—*Louisville Journal.*

This leg was exhibited at the New York State Fair, at Albany, October 4, 1859, and the following is the Report of the Committee:

Artificial Legs.—History teaches us that now and then an ultimatum will be accomplished in some given direction of scientific research or mechanic art, or both combined. This, it seems to us, is the case in regard to Dr. Bly's Artificial Leg. Nothing can, possibly, more entirely imitate and replace the natural leg. It is light and strong—it is capable of adjustment to the stump without inconvenience to the wearer—it is symmetrical and elegant in its proportions, and when covered with a stocking would not be detected. But its crowning excellence consists in the flexibility and perfectly natural motion of the joints, and the adaptation of the foot to any position or any uneven surface, operating in all respects like the natural one, and the motion or action of the leg in the act of walking, on account of the rubber springs or muscles with which it is furnished, instead of hitching or dragging as is generally the case, is elastic, buoyant, and natural. And we repeat, it is difficult to surmise what further can be accomplished in this direction. The doctor had a gentleman in company with him who wore two of them, and it was really surprising to see with what ease, with only a cane, and sometimes without even that aid, he could not only walk about, but could do so easily and gracefully. The doctor has not only proved himself a first class inventor, but a public benefactor also, and we feel sure that those who have been so unfortunate as to be deprived of either or both of their legs, will learn by the use of his artificial ones to so regard him We award him the first premium.

I certify that the foregoing is a true extract from the report of Committee, No. 72d, of the N. Y. State Fair, held at Albany Oct. 4th, 1859.

S. A. BUNCE, Sec'y to Com.

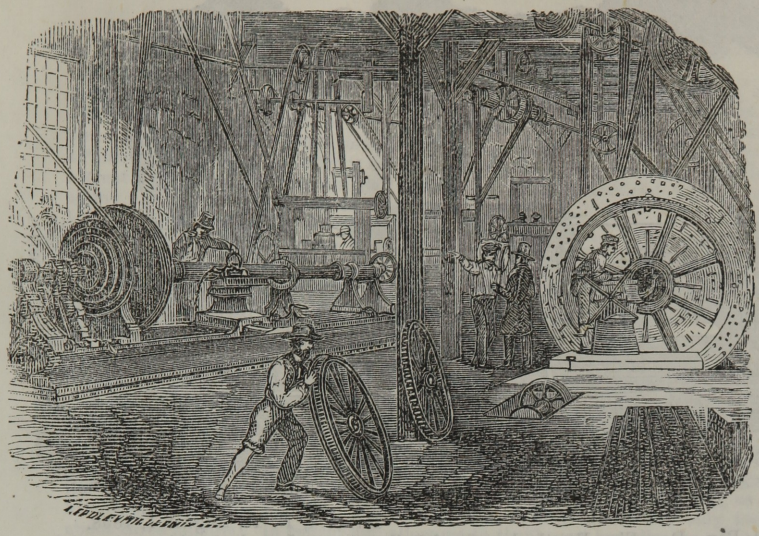
Albany, N. Y., July 30th, 1860.

Dr. Bly:

I am very much pleased with my artificial leg you made; it works well, so life-life in all its motions. The superiority of your springs over the metallic ones I have formerly worn, is very apparent. I can walk with perfect ease and elasticity. I am on my feet from early dawn till night, both in and out doors, without the least inconvenience, since wearing the one made by you, but I could never do it with either of the former legs, to a much less extent, without wounding me severely: this great difficulty is now done away with.

I have worn legs of several different patents, among which are Selpho's old Anglesea, and Selpho's improved Anglesea. Over all of these I must give yours the decided preference. Yours, with much respect,

ANNA McCREA.



CORNING, N. Y., Aug. 15th, 1860.

DR. DOUGLAS BLY:

Dear Sir:—I have worn your leg every day since I got it, and am very much pleased with it. I have worn three different patents before yours—one made in New York, one in Boston, and one in Springfield, Mass., by Palmer & Co., but I never could walk as well, or work with as much ease with either of them as I can with yours. The side motion is the best thing of all. It enables me to lift and carry heavy iron castings without hurting or straining my stump; also to work at a vice, or do anything belonging to my trade—machinist.

Your India rubber springs enable me to walk very well indeed. I have no limp or halt as I had with my other legs. The India rubber springs seem to take away the mechanical action always produced by metallic springs. If any one wishes to see this demonstrated, let him come and see me at my work, or let him take a walk with me. Yours, &c.,

HENRY LIPPS.

A PALMER LEG REMODELLED AND IMPROVED.

SCHAGHTICOKE, Rensselaer Co., N. Y., Aug. 16, 1860.

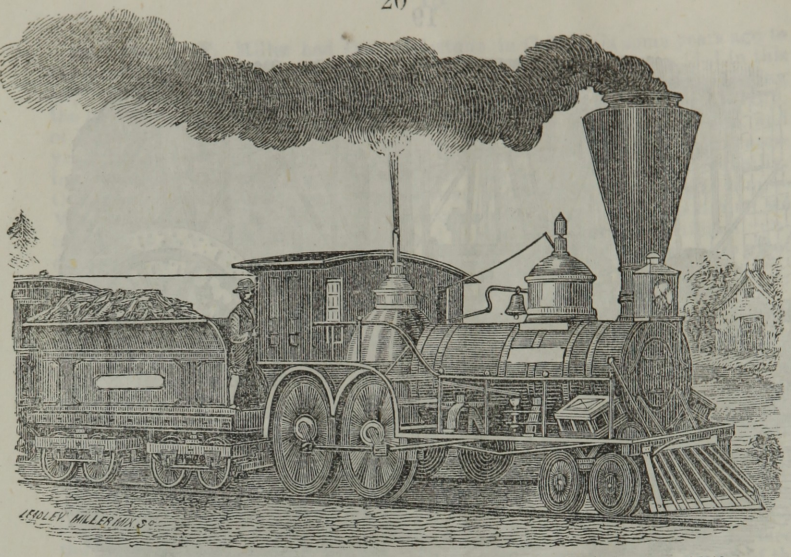
DR. BLY:

Dear Sir:—I am happy to inform you that my Palmer leg, which you remodelled for me with your improved Ankle Joint and Springs, now works to a charm. I suffered a great deal of inconvenience with the springs of my old leg continually breaking, and with the joints becoming so loose as to make a noise at every step, both of which difficulties are obviated by your improved springs and joints.

The lateral motion of the ankle joint is a great improvement over the old Palmer ankle. It enables me to walk on any grade, or on rough and uneven places, without prying, cramping or straining my stump. And it gives a greater freedom of motion, and takes away that stiffness that I used to feel in walking.

The natural motion and ease in walking, obtained by your ankle joint and India rubber springs, when contrasted with my old Palmer ankle and springs, makes your invention invaluable. You deserve the heartfelt thanks of that portion of community, who are obliged to look to art, to supply a limb, in place of one of which accident has deprived them. I remain, truly your friend,

J. W. GEDDIS.



BATAVIA, N. Y., August 1, 1858.

DR. BLY—Dear Sir: For the benefit of Railroad men, I send you this testimonial in relation to the Artificial Leg you made for me.

I am an engineer, and run a locomotive on the N. Y. Central R. R. I have tried a number of artificial legs of different construction, and yours enables me to work about my engine with more ease and facility than any other. The mobility of the ankle joint, which allows the foot to adapt itself to the motions of the engine, also to the unevenness of the ground in jumping off, is of great importance to railway men. I have had it a year, and it has given me no trouble in breaking or getting out of order, though it has had some severe tests in jumping off the engine.

H. BACKUS.

ADDITIONAL TESTIMONY FROM H. BACKUS.

BATAVIA, N. Y., June 1st, 1860.

It is now about two years since I obtained one of Dr. Bly's Ball and Socket Jointed Artificial Legs, and I can testify that neither joint, spring, or any part of it, has got out of order in the least. H. BACKUS.

SHUSHAN, WASHINGTON Co., March 13, 1861.

DOUGLAS BLY, M. D.:

My Dear Sir:—I shall send you my Palmer Leg on Monday next, by express, for you to put in all your improvements, especially the ankle and knee joints.

* * * * * * * *

In reading one of your recommendations, the writer speaks of the great annoyance with artificial Legs, such as the wearing of the bolts and boxes, producing a *clanking* or *rattling* noise. That is the case with my limb, so much so that I dread to walk, and do so only when compelled by necessity. Put in your method of tightening the knee joint. Yours, affectionately,

PHILANDER PERRY,
Pastor First Salem Bap. Church.

INGERSOLL, C. W., March 6, 1861.

DOCT. BLY:

Dear Sir:— * * * * I have improved very much in walking since I began to wear the Leg you made me. I like your Leg far better than my old one. I am not afraid of breaking a spring, which gives me confidence in myself when walking. * * I remain yours,

JOHN C. LITTLE.

UTICA, July 9, 1861.

To those wishing to procure substitutes for lost Legs:

I, Thomas Morgan, having had the experience of several years in walking artificially, and consider myself competent of judging of the merits of artificial Legs, and will speak without prejudice, as it is of no interest to me whatever; only if I could, through my advice, help some one in procuring a good and substantial Leg. I first got a Palmer Leg, and having worn it out was compelled to get a new one. I had heard a great deal of Dr. Bly's famous Ball and Socket Jointed Artificial Leg. I made up my mind to have one, and see what I could get out of it in the way of walking. I have been walking on it one year, and to my satisfaction. I must give it a decided preference over the Palmer Leg; it gives me more ease and comfort, and certainly has greater durability, as I cannot see as it has worn a particle yet. The Ball and Socket joint imparts ease that I cannot get where there is no side motion; and secondly, it never requires bushing and constant tinkering to keep it in running order.

Yours, truly,

THOMAS MORGAN,
Utica, N. Y.

MT. GILEAD, O., January 24, 1861.

DR. BLY:

Dear Sir:—It is with pleasure, and from a sense of duty I owe you, I write this. The Leg you manufactured for me works to a charm. Those not acquainted with the circumstance can hardly be made to believe that I use an Artificial Leg, as it is hardly perceptible, as I walk without crutch or cane, although I have only used it about three months. In conclusion, allow me to thank you heartily for what you have done for me, and also to congratulate you on your *great* invention, hoping that prosperity may be yours. I remain your obedient servant,

E. C. CHASE,
County Recorder,
Morrow Co., Ohio.

INDIANAPOLIS, IND., May 12, 1861.

DR. D. BLY:

Dear Sir:—My experience in wearing Artificial Legs previous to wearing yours, was such that I had made up my mind that all artificial Legs were *necessarily* uncomfortable, and that I must put up with it; but now I am happy to find that I was mistaken. The side motion in your's prevents all the cramping, straining and hurting the stump when I step on a stick or stone, or on uneven ground, a relief and comfort that no one can well understand unless he has worn a Leg without side motion. The curved joints at the knee, with the arrangement for tightening, are admirable. Either the ankle joint or the rubber springs, or both together, have improved my walking very much. I walk so well that I am looked upon as an able man; so well, that one of our captains, who was getting up a company, wanted me to join in his ranks, and one of the boys told him that I had an artificial Leg, so he examined me, and finding that he was sold, treated the crowd.

Yours, truly,
WM. B. JONES.

CINCINNATI, O., April 24, 1861.

DR. D. BLY, Rochester, N. Y.:

Respected Sir:—I feel that I am fulfilling a duty in returning my sincere thanks for the great benefit I received in procuring one of your "Artificial Limbs." I can deeply feel for the poor wretch who has to pass through life on a crutch, *with aching arm, benumbed hand, and deformed appearance.* I would, as a fellow sufferer, urge on all such the necessity of procuring one of DR. BLY'S "Artificial Limbs." I have been walking for six months on one, and I have more than realized my most sanguine expectations. The ankle joint is *splendid,* (though the agent of "the Palmer Leg in Cincinnati" told me that it was useless, and that I would walk on the side of the foot in a short time,) but that is impossible. I have since thought the gentleman had selfish motives, though it is uncharitable to practice them on the poor sons of misfortune. May your invention ever continue to be to others what it has been to me: a revival of life's happiest days. Again thanking you,

Believe me ever your debtor,

A. R. CALLAHAN.

"SYME'S OPERATION" THROUGH THE ANKLE JOINT.

From the following testimony of Mr. White, a well known citizen of Albany, N. Y., who purchased a leg and gave it to a lad as a charity, it will be seen that this Leg can be applied after "Syme's operation" with unparalleled success. Still, I think it is better for the patient to be amputated at the junction of the lower and middle third of the tibia.

ALBANY, N. Y., May 1, 1862.

DR. D. BLY:

Dear Sir—The Artificial Leg which I purchased from you for a young lad who had his leg amputated through the ankle joint, and whose case I felt a great interest in from the peculiar circumstances attending his injury, works admirably. His movements in walking appear natural and easy, and his control of the limb seems in no wise impeded. I feel gratified, from my observation, of the perfection of your art in the manufacture of Artificial Legs, in giving you this approving testimonial.

Yours, &c.,

WILLIAM WHITE.

UNEXPECTED TESTIMONY.

The following letter from Mr. Geddis to Mr. Parks in answer to inquiries in relation to artificial limbs, is very gratifying indeed, particularly as I had not heard from Mr. Geddis for nearly two years. The letter being shown me by a third party only a day or two before going to press, I publish it without asking the consent of either Mr. Parks or Mr. Geddis, therefore I must beg their pardon for taking such liberties:

SCHAGHTICOKE, April 24, 1862.

MR. S. C. PARKS, Troy, N. Y.:

Dear Sir—Yours of yesterday is at hand, and I cheerfully render you all the information in my power. I suffered amputation of my right leg above the knee in 1855, was advised to try the "Palmer Improved Leg," which I did in the fall of 1856, procuring it at the "Home Office," under the special observation of Mr. B. F. Palmer, who knows how to sympathize while striving to ameliorate the unpleasant condition of such as you and I.

I was well satisfied with it, walking nearly as well as I ever did. But I was troubled very much with the metallic springs breaking, sometimes as often as every week. Finally, in June, 1860, I went to Rochester, and had my old leg re-modelled with Dr. Bly's improvements *below* the knee, which I then liked very much, and which I now like still better, for I can walk much easier, with less effort, and more freedom than on the Palmer patent.

The great benefit of Bly's over all other improvements I have seen, is, his substitution of rubber in place of metal for springs, and the ball and socket ankle joint, which admits of a very natural movement in every direction, whereas the others admit of only an up and down front movement.

I should advise you by all means to have Dr. Bly's Leg. * * * If there are any particulars about which I can give you any light, I shall be happy to do so. I shall *try* to go to Rochester about the 1st of June on the same errand, and if you do not go before, I should be glad of your company. * * * * I should also be glad to show you the leg and explain its workings.

Your friend and well wisher,

I. W. GEDDIS.

REPORT OF COMMITTEE,

On Artificial Legs at the Ohio State Fair, 1861:

"Your Committee examined an Artificial Leg presented by Douglas Bly, of Cincinnati. We feel free to *commend* it as a most ingenious piece of mechanism, combining elasticity, freedom of motion and strength, in a very great degree of perfection. Your Committee are of the opinion that in the free *lateral motion* which it permits of the *ankle-joint*, it is an improvement over *any* Artificial Leg now manufactured."

Your Committee awarded Dr. Bly the first prize.

HARTWICK, Otsego Co., N. Y., May 10, 1862.

DR. BLY:

Dear Sir—You may refer any one to me who wants a leg, and I will consider it no trouble to show mine. I have now worn it more than a year, and it has never been out of order a minute—a great contrast when compared with the Palmer Leg which I wore before getting yours. That gave out so often that I never felt safe. The Palmer Leg may do for a gentleman, but it is not to be compared with your's for a farmer. The universal motion at the ankle joint enables me to go about my farm, no matter how uneven the ground. I can chop, make rail fence, dig ditch, sow my grain, in fact do most all kinds of work, though my leg is amputated within five inches of my body. Yours truly,

GEORGE LOUGH.

AN ARTIFICIAL LEG IN THE ARMY.

CAMP ———, Dec. 10, 1862.

DR. BLY:

Dear Sir— * * * * I think I did well to be sworn in to the service without being found out, or even mistrusted. I am in ——— Regiment, ——— Brigade. After we had travelled two hundred miles I told Capt. —— that I wore an artificial leg, and he was utterly amazed. He said no one would think of such a thing to see me, and as it was, nothing should be said as long as I did my duty. Give my respect to your workmen, and tell them that I would not be without the "ball and socket" for anything. Yours ever,

——— ———.

P. S.—You must not tell my name nor regiment, because it will be "all day" with me if Uncle Sam finds it out.

ROCHESTER, N. Y., May 12, 1862.

In 1857 my foot was run over by a locomotive, and "Chopart's operation" across the instep was performed by an eminent surgeon. I afterwards went to New York City and procured a substitute from Palmer & Co., with which I hobbled about the best I could. The springs broke within three or four months, and after that time the leg was continually giving out in different parts, and continually being repaired for about eighteen months, when it got beyond repairing, and I was obliged to abandon it. After becoming satisfied that a serviceable substitute for "Chopart's operation" was impossible, in 1860 I underwent secondary amputation at the lower part of the leg, through and by the advice of Dr. Bly. When well, I procured a substitute from Dr. Bly, which exceeds my highest expectations. It has never required any repairs, though more than a year in constant use. It fits well, and is so easy to walk with, that it almost seems as if the second amputation put my leg on again, instead of cutting off more. The ease with which I walk, where it is rough or smooth, astonishes those who never before have seen an artificial leg with lateral motion.

LOUIS GOODMAN.

SCHENECTADY, N. Y., May 6, 1862.

DR. D. BLY:

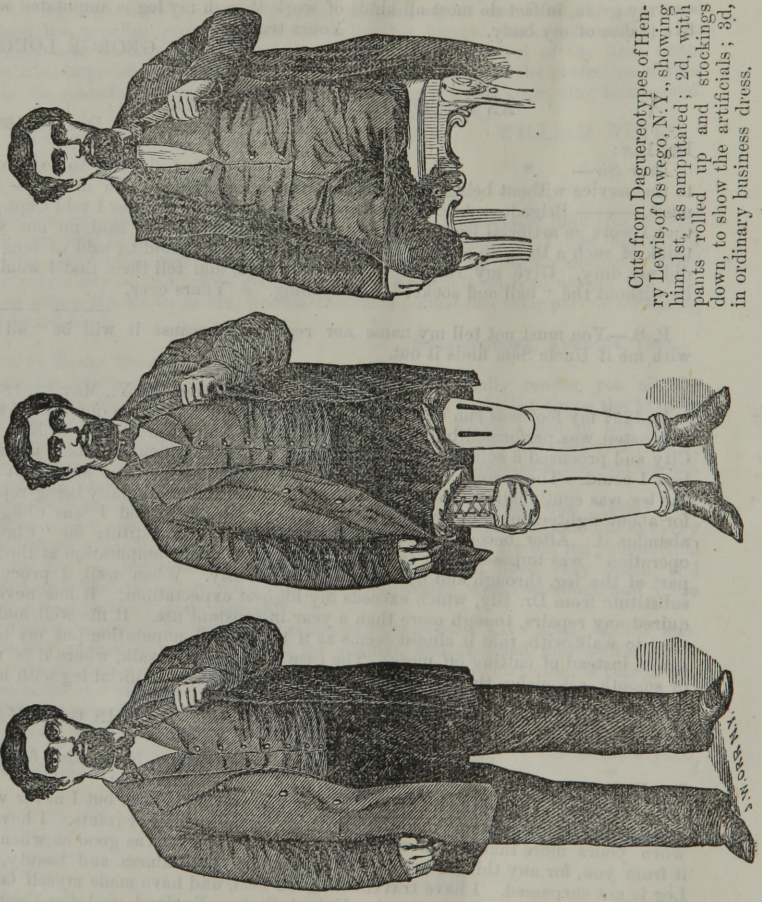
Dear Sir—I have worn the Palmer patent Legs several years, but I never wore a Palmer Leg a year without renewing or repairing the springs or joints. I have now worn yours more than a year without any repairs, still it is as good as when I got it from you, for any thing I can see. For comfort, naturalness and beauty, your Leg is not surpassed. I have travelled a good deal, and have made myself familiar with the different Legs made in the United States, England, and the Continent, having worn nearly every kind that has been made within the last twenty-four years, therefore speak knowingly. Some manufacturers who make Legs without lateral motion, pretend that lateral motion is of no service in an Artificial Leg, but any man who has worn both kinds *knows* that the lateral motion is worth everything. It gives such comfort, freedom, and grace, and is such a palpable improvement, that it seems strange that any one should be so *selfish* as to make any such pretensions.

Respectfully yours,

ANDREW FRAME.

HENRY LEWIS, OSWEGO, N. Y.

This is probably the most remarkable case in which Artificial Legs have ever been applied with success. They have been applied, as in the case of J. S. Sanford, where one leg was amputated just above the ankle, and the other just above the knee, but never in a case of such mutilation as this. This case demonstrates the utility of the lateral motion beautifully. The stumps are so short as to preclude all possibility of wearing Artificial Legs without lateral motion. To balance with such short stumps on Artificial Legs without lateral motion, would be like a boy on stilts.



Cuts from Daguereotypes of Henry Lewis, of Oswego, N.Y., showing him, 1st, as amputated; 2d, with pants rolled up and stockings down, to show the artificials; 3d, in ordinary business dress.

Oswego, April 24, 1862.

Dr. D. Bly:

Dear Sir—It is with heartfelt gratitude that I write these few lines to inform you of my progress, and if they will be of any service to you or your patients, you are at liberty to use them.

When my legs were amputated no one supposed that Artificial ones could be applied in my case, because so little of my limbs were left, one being amputated very close to the body, and the other within an inch and a half of the knee joint. In

no case, though similar, had Artificial Legs ever been applied to such short stumps. And when Dr. Bly would make no promises, except that he would try, then the future looked dark. But ten thousand thanks for that trial. It was successful. Despair was banished. Joy returned like a burst of sun-light after a terrible storm. I was happy once more.

I have now worn the Legs two years with increased success. I walk to and from my place of business with ease. On an average I walk two miles a day in the street, which is not anything like what I could do if occasion required. I go up and down stairs, get out and into carriages, railway cars, &c., &c., and go when and where I please. I use no cane in and around the office. I have been intimately acquainted with persons for months without their mistrusting that I wore even one Artificial Leg, though they saw I was a little lame.

The lateral motion at the ankle prevents all cramping and prying when I step on any inequality, and thereby enables my little short stumps to control the legs remarkably well.

With many wishes for your health and happiness, I remain yours.

HENRY LEWIS.

ENDORSED BY THE NEW YORK ACADEMY OF MEDICINE.

The New York Academy of Medicine acknowledging the importance of Artificial Legs, appointed a committee to investigate the construction and merits of every Artificial Leg before the public, and report to the Academy. After having the subject under investigation for something more than a year, the committee made an elaborate report, from which I make the following extract:

"The *Bly Leg* differs in many important particulars from those already described. The ancle joint differs from all others in the means made use of to give mobility.

It is a tolerably close imitation of the natural joint, having prominently in view a universal movement, which is attained by a ball and socket joint. The ball is of ivory, the socket in which it works of vulcanized rubber, and kept in position by five catgut cords (two on either side, and the heel cord) having vulcanized rubber nuts upon their upper ends, which are made fast to a strong diaphragm about the middle of the leg. The nuts work upon car-spring India rubber cushions to give elasticity of action. By tightening these nuts, almost any degree of mobility may be had according to the wishes of the wearer, and almost any inclination to one side or the other according to the peculiar set of the wearer's foot.

The necessity for a broad, firm base such as the feet, upon which the characteristic erect posture of man depends, renders general mobility especially necessary. This member being intended to give firmness and stability in the erect posture by accommodating itself to all inequalities of surface, must of necessity be free to assume any inclination in any direction, and this can easily be accomplished by a universal movement at the ancle.

It will be at once seen that if the sole of the foot (the ankle being stiff) be flatly applied to an inclined surface of only a few degrees, the head of the femur must describe an arc in proportion to the length of the limb and inclination of the surface, or else the body and arms must be engaged in continuous efforts to preserve the balance, which could not be done even then, except on surfaces inclined a very few degrees

This difficulty is overcome in one direction only by the anteroposterior flexion of the ankle, the same difficulty obtaining in full force as respects movements in every other direction. To remedy this defect, wearers of limbs of this kind tread upon the edge of the foot when on inclined surfaces, in effect surrendering all the advantage of a firm, broad base, and converting the limb to that extent into a "peg leg."

Having such impressions of the importance of a universal movement at the ankle, we believe that such as make use of that principle are to be preferred to those in which it is not adopted."

ENDORSED BY THE STATE MEDICAL SOCIETY OF OHIO.

"*Resolved*, That we have witnessed the exhibition of Dr. Douglass Bly's Ball and Socket-Jointed Artificial Leg, with extreme satisfaction, and are free to express the fact that its motions and mechanism surpass everything of the kind that we have ever become acquainted with."

AN IMPORTANT INVENTION

TO PERSONS OF LIMITED MEANS.

I have often been appealed to by Surgeons in the Hospitals to construct a good substantial Artificial Leg for the poor; one which would be cheap and durable, though it did not have all the motions of the natural leg, like my "Ball and Socket jointed" one. Therefore I made an effort, and am pleased with the result.

This leg is not equal to my "Ball and Socket" one, because it has no lateral motion at the ankle, still, it is much superior to any other leg yet invented, for the following reasons: First, because it has the same India rubber springs that my Ball and Socket leg has, which cannot be broken, and which give an easy, graceful motion, like that of the natural muscles, instead of the quick, snapping action of metallic springs. Suppose a man has a leg with metallic springs just strong enough to bear his weight and walk properly, should lift a box, bag, or weight of any kind nearly equal to his own weight, what would be the effect on his springs thus overtaxed? Ask any laboring man who has worn a Palmer Leg. India rubber springs in such a case cannot be broken, because they are used by compression, like Rail Road Car springs. India rubber springs, which have now been in use three years, show no wear or loss in any way perceptible. If there is any loss, it is so little that three years use does not show it.

The ankle joint in this Leg is a unique invention within itself. The bearing between the foot and leg, or axis of this joint, is composed of a peculiar composition, invented by Dr. Bly, who was educated in Chemistry, Anatomy, and Surgery, in Paris. By a thorough knowledge of Chemistry, and repeated experiments, he has discovered a *composition* which is exactly what was needed to make an ankle joint without lateral motion, which would be durable, and never wear so as to get loose and rattle, or require bushing with buckskin, or anything else. Thus he has given the same durability to the ankle joint without lateral motion, as he has previously given the one which has *all* the motions of the natural ankle. For amputation above the knee, the knee joint is just the same as that in the "Ball and Socket" jointed Leg already described. The exterior of this Leg is plain and substantial. Nothing is spent in showy finish—the main object being to produce great durability with but little cost, which is now accomplished. This Leg has all the motions the Palmer Leg has, and has the all-important advantage of *more durable joints* and *my India rubber springs*, which make it to the poor, what my "Ball and Socket" jointed Leg is to the rich. As it is intended for the poor, especially for cases of *charity*, it will be furnished as low as the workman can manufacture it and live.

A host of testimonials might be given for this invention, but as it has the same springs, and same durability as the other, it is unnecessary.

I have a circular dated "Office of Palmer's Patent Leg, Jan. 1, 1858," and signed "Palmer & Co.," from which I make the following quotation:

"To insure permanency to the *business* no pains have been spared, and our present facilities for supplying limbs offer the strongest guaranty to our patients. They may feel assured that we shall always be found as ready to attend to their *subsequent needs* as to construct the limbs originally—*a consideration of as much importance* to the *patient* as to have the *surgeon at hand to attend to the treatment of a limb after amputation.*"

The Legs herein described, with their India Rubber springs, are *not* continually breaking down or giving out, so as to require the constant attention of the maker, as a patient after amputation requires the attention of the surgeon. The principles upon which these are constructed are such that none of them can get out of order, unless it is through some negligence of the workmen, and only two or three such cases have ever occurred.

(From the Transactions of the Medical Society of the State of New York.)

The Points of Election and Kind of Operation, for Amputation of the Lower Extremities, with reference to the Use of Artificial Limbs.

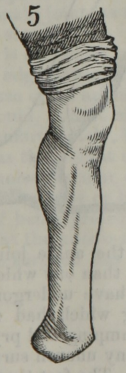
By DOUGLAS BLY, M. D., Rochester, N. Y.

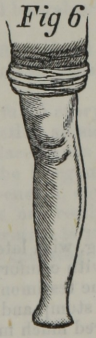
POINTS OF ELECTION.

Since an early period in surgery, surgeons have recognized the importance of selecting such points for amputation of the lower extremities, as were best adapted to the application of artificial limbs. And many of the authors of works on surgery have given such points as were considered best adapted to the artificial limbs made at that time, but the great improvements which have been made in artificial limbs have materially changed the old points of election; therefore this subject demands the attention of surgeons generally.

In accordance with the high state of perfection now attained in the construction of artificial limbs, all amputations performed on the foot should be anterior to the insertion of the flexors of the foot. The operation known as "Chopart's," severs the flexors of the foot, and should *never* be performed under any circumstances whatever. The moment the flexors are severed, the extensors, having no antagonists, draw the heel upward, extend the foot on the leg, and cause the amputated surface to point almost directly downward. This deprives the patient of all power to use the remaining portion of the foot, and also renders him incapable of wearing a useful substitute. I am aware that, to obviate this difficulty, some surgeons have severed the tendo achilles, but that has proved ineffectual; it is only a partial relief at best. Therefore amputation at this point renders the patient a hopeless cripple. The wound is slow to heal, *always tender*, often ulcerating, and the remaining portion of the foot is generally a curse to the patient as long as he lives, unless he submits to a secondary amputation.

It is but a short time since the Prof. of Surgery in the Geneva Medical College performed secondary amputation for such a patient. This patient had had the tendo achilles cut twice, and then made an unsuccessful effort to wear a substitute constructed by a noted firm in New York city, but at last, to better his condition, was obliged to submit to re-amputation. (*See cut, Fig. 5, which represents a stump after "Chopart's operation."*)





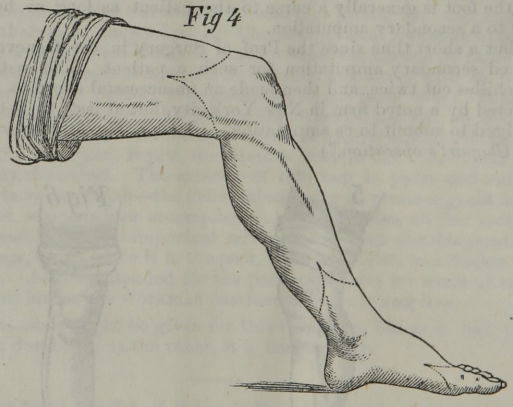
Amputation through the ankle joint by sawing through the malleoli, known as "Symes' operation," is less objectionable; still, since the artificial leg has been brought to such perfection, there are reasons which weigh heavily against this operation. The ankle joint in the artificial leg should correspond with the one of the natural leg, but can not in this case, on account of the length of the tibia and

fibula, therefore the joint must be placed a little lower than the other. (*See cuts Nos. 1 and 3, on second page.*) For amputations below the knee, the cords C, Fig. 1, have to be shortened according to the length of the stump, until the springs, S, rest on the plane seen just above the ball, B, and can not conveniently be placed any lower, consequently in Syme's operation the springs must be placed in the foot, whereas they should occupy the position of the muscles as near as may be. To get a good fit with an artificial limb, the stump should be conical, or at least it should not be larger at the end than it is higher up, as it renders a portion of the interior of the artificial too large, if made large enough to allow the bulbous extremity to pass through. (*See cut, Fig. 6, which represents a stump, after "Syme's operation."*) Or if the leg is made to lace up, even then the ankle is necessarily large and clumsy.

It has been supposed that by this operation the patient would be able to take the most if not all his weight upon the end of the stump, but the cases which I have seen do not sustain the supposition. I have not seen one that could support the whole weight on the end of the stump, though a few could sustain some, not enough, however, to counter-balance the difference in the substitutes; while others could not bear any more than those who are amputated higher up. Therefore, when amputation becomes necessary which would sever the flexors of the foot, it should be performed a sufficient distance above the ankle joint, to admit of an artificial substitute with an ankle joint of the most perfect construction now attained.

The junction of the middle and lower third of the tibia is the lowest point at which amputation of the leg can be performed, and give sufficient room for the construction of a good, substantial and graceful artificial limb, with an ankle joint of the most recent improvement. *It also gives a stump of as much length as is of any service to the patient*, therefore the junction of the middle and lower third of the tibia should be the *first point of election*, whenever the flexors of the foot can not be saved. (*See point indicated on leg, cut, Fig. 4.*)

Fig 4



An artificial leg, with lateral motion at the ankle joint, will bear a stump of greater length, with comfort to the patient, than one which has *no* lateral motion at the ankle. The testimony of those who have undergone re-amputation is, that with a very long stump and an artificial leg which had no lateral motion at the ankle, they suffered much more from the cramping and prying of the stump against the sides of the leg when they stepped on any uneven surface, than they did after re-amputation, with a stump of less length. The fact that the junction of the lower and middle third of the tibia gives a stump of as much length as is of any service to the patient, is important in this connection. Then from this point the surgeon should not recede unless compelled by necessity. He should contest every inch until driven to the knee joint. But he should never operate through the knee joint, as nothing is gained by it while much is lost, because the end of the femur will occupy space which is needed for the construction of an artificial knee joint. True,

an artificial joint has and can be made in this case, but not near as durable and comely as when the condyles of the femur are removed. The size of the condyles makes the end of the stump too large, and the same objection arises as in "Syme's operation."

If the femur is sawn through just above the condyles, the stump assumes a conical form, and the end of the bone no longer presents any obstacle to the construction of an artificial joint of the most modern improvement. Then for amputation of the thigh, the point of election is just above the condyles of the femur. (*See point indicated on thigh, cut Fig.* 4.) From this point upward the surgeon should contest every inch with redoubled vigor. And the higher compelled to go, the greater the value of every item of femur saved.

KIND OF OPERATION.

In the use of artificial legs no weight is ever taken on the end of the stump, in fact nothing is allowed to *touch* the end of the stump. But on the sides it is just the reverse. The artificial leg encases the stump, and more or less pressure is taken on all sides, particularly anteriorly and posteriorly. The stump is used as a lever to operate the artificial leg, and at every step there is considerable pressure on the anterior surface in carrying the leg forward, and then it is transferred to the posterior surface, just as the weight of the body is being carried forward on to the leg. Thus there is a pressure alternately on these two surfaces at every step. Besides this, with a leg in which there is no lateral motion at the ankle joint, there is more or less cramping and prying of the stump against the sides of the artificial leg whenever the foot is placed on an inclined plane, or one side happens to be placed on any inequality, such as a stick or stone, or uneven ground of any kind. Now as the cicatrix is always tender and sensitive, it becomes necessary that, in amputating the lower extremities, the surgeon should choose the kind of operation which will best protect the stump on all sides, particularly the anterior and posterior.

The operation which fulfills these indications best, is the *double flap*, the flaps being antero-posterior. (*See dotted lines on cut, Fig.* 4.)

If the flaps are taken from the antero-posterior surfaces, they lap over the end of the bone or bones, and protect the edges by means of sound, healthy integument in all cases, and in many by a cushion of muscle. This brings the cicatrix across the end of the stump where nothing can touch or injure it when wearing an artificial leg. Very small portions of the cicatrix may in some cases pass up on the sides laterally, but not enough to be of any account in the use of an artificial leg with lateral motion at the ankle joint, as that prevents all lateral cramping or prying against the sides of the stump.

The single flap operation is decidedly bad, because it often, if not always, brings the cicatrix just across the edge of the bone, where from its sensitiveness it seriously interferes with the use of an artificial leg.

The circular operation would, at first sight, appear to fulfill every indication, as it is alike on all sides, but unfortunately, instead of protecting all sides, it is really just the reverse. As soon as the weight of the body is placed upon the stump with a circular operation, the whole muscular covering, with the integument, glides upward in a body; the end of the bone or bones protrude beneath, covered by a thin cicatrix only, and instead of being protected on all sides are really protected on neither. Thus it is seen that the *antero-posterior flap operation* is THE operation, to be performed, whenever the surgeon has the privilege of choosing

SPECIAL INSTRUCTIONS TO THOSE WANTING LIMBS.

HOW TO PROCEED.

LOCATION OF OFFICES AND MANUFACTORIES.

The greatest recommendation of all that can be given, is the rapidity with which this Leg has gone into use and the eagerness with which it is sought for. Though but a recent invention, it is now in use in eighteen States, one Territory, Canada, England and France; and still more would now be in use had my facilities for manufacturing been eqnal to the demand. For the last year patients have had to take their turns, and some of them have been obliged to wait four months And yet I have had six men constantly employed, and most of the time doing all the over work they were able to.

To meet this demand, and to relieve myself of the importunities of those who are waiting, and think from peculiarities of their cases that their legs ought to be made first, I have opened an Office and Manufactory in the Ohio Mechanic's Institute, adjoining the Medical College, in Cincinnati, O. With the addition of this new and extensive establishment, I hope and trust that I shall be able to supply promptly, all who want anything of the kind.

The above was written in May, 1861. And now, May, 1862, the demand has again outgrown all my facilities, for manufacturing, and I have been obliged to open still another office and manufactory. This one is located at No. 746 Broadway, N. Y. With this increase of facilities, I again hope I may be able to meet the demand.

HOW TO PROCEED.

☞ The stump should be tightly bandaged until an Artificial Leg is procured, and the remaining joints should be moved more or less every day.

To insure a perfect fit, every patient will be required to come to one of the manufactories when the Leg is party made, and have it fitted. They will be detained only two or three days. Before coming, each should write, stating the case, and a blank for measurements will be sent. The blank should be filled and returned, and when the Leg is partly made, the patient will be notified to come and have it fitted.

Surgeons and patients may rest assured that all cases where sloughing or contraction has taken place, and all irregular and anomalous cases may be intrusted to Dr. Bly. For ten years Dr. Bly has been a practicising physician and surgeon. He graduated at the Jefferson Medical College, Philadelphia, and afterwards entered the Ecole de Medecine in Paris, where he spent a year, and then, after visiting the principal European Hospitals, he returned to this country and taught Anatomy for seven years.

RECAPITULATION OF OFFICES AND MANUFACTORIES AND THEIR LOCATION.

They are all located so as to be very easy for strangers to find them. The New York office is at No. 746 Broadway. The Rochester office is over the Post office, and the Cincinnati office is in the Ohio Mechanics Institute, adjoining the Medical College, corner of Sixth and Vine streets.

For prices, or further information, address

DOUGLAS BLY, M. D.,
either
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